

WHAT IS CLAIMED IS:

1. A method of forming a pattern on a plate employing a mold, said method comprising:
placing said plate in superimposition with said mold;
positioning formable material between said plate and said mold;
forming said pattern in said formable material to have a shape complementary to said mold, defining patterned material; and
adhering said patterned material to said plate.
2. The method as recited in claim 1 wherein positioning said formable material further includes depositing said formable material onto said mold.
3. The method as recited in claim 1 wherein positioning said formable material further includes depositing said formable material on said mold as a plurality of spaced-apart droplets.
4. The method as recited in claim 1 wherein positioning said formable material further includes depositing said formable material onto said mold, with forming further including contacting said formable material with said plate.
5. The method as recited in claim 1 wherein positioning said formable material further includes depositing said formable material onto said mold, with forming further including contacting said formable material with said plate and impinging radiation upon

said patterned material to solidify said patterned material.

6. The method as recited in claim 1 further including depositing a coupling agent on a surface of said plate, with adhering said patterned material to said plate further including forming a chemical bond between said patterned material and said coupling agent.

7. The method as recited in claim 1 further including forming said plate to be substantially transparent to actinic radiation.

8. The method as recited in claim 1 further includes providing said formable material from a group of materials consisting of sol-gel; hybrid sol-gel; polycarbonate, polymethylmethacrylate, and epoxy.

9. The method as recited in claim 1 further including providing said mold with features having a height greater than $10\mu\text{m}$.

10. The method as recited in claim 1 further including providing said mold with features having a height in a range of $10\mu\text{m}$ to $100\mu\text{m}$.

11. The method as recited in claim 1 further including forming said mold from a group of materials consisting of silicon, gallium arsenide, quartz, fused-silica, sapphire, organic polymers, siloxane polymers, borosilicate glass, fluorocarbon polymers and a combination thereof.

12. The method as recited in claim 1 further including forming said plate from a group of materials consisting of quartz, fused silica, and soda lime glass.

13. The method as recited in claim 1 wherein positioning said formable material further includes depositing said formable material on said plate as a plurality of spaced-apart droplets.

14. A method of forming a pattern on a plate employing a mold, said method comprising:

placing said plate in superimposition with said mold;

positioning formable material between said plate and said mold;

forming said pattern in said formable material to have a shape complementary to said mold by exposing said formable material to actinic radiation defining cross-linked material; and

condensing said cross-linked material by thermally treating said cross-linked material, defining patterned material.

15. The method as recited in claim 14 further including adhering said patterned material to said plate.

16. The method as recited in claim 15 further including depositing a coupling agent on a surface of said plate, with adhering said patterned material to said plate further including forming a chemical bond between said patterned material and said coupling agent.

17. The method as recited in claim 14 wherein positioning further includes depositing said formable material as a plurality of droplets on said mold.

18. The method as recited in claim 14 further including providing said mold with features having height greater than $10\mu\text{m}$.

19. The method as recited in claim 14 further including providing said mold with features having a height in a range of $10\mu\text{m}$ to $100\mu\text{m}$.

20. The method as recited in claim 14 wherein said formable material is selected from a group consisting of sol-gel, hybrid sol-gel, polycarbonate, polymethylmethacrylate, and epoxy.

21. The method as recited in claim 14 wherein said mold is selected from a group consisting of silicon, quartz, fused-silica, sapphire, organic polymers, siloxane polymers, borosilicate glass, fluorocarbon polymers or a combination thereof.

22. The method as recited in claim 14 wherein positioning said formable material further includes depositing said formable material on said plate as a plurality of spaced-apart droplets.

23. A method of forming a pattern on a plate employing a mold, said method comprising:

placing said plate in superimposition with said mold, with said plate having a coupling agent disposed on a surface thereof;

depositing formable material on said mold as a plurality of spaced-apart droplets;

contacting said formable material with said plate to form said pattern in said formable material to have a shape complementary to said mold, defining patterned material; and

impinging actinic radiation upon said patterned material to couple said patterned material to said coupling agent of said plate.

24. The method as recited in claim 23 wherein impinging actinic radiation further includes solidifying said patterned material.

25. The method as recited in claim 24 wherein impinging actinic radiation further includes forming a chemical bond between said patterned material and said coupling agent.

26. The method as recited in claim 25 further including providing said mold with features having dimensions greater than $10\mu\text{m}$.

27. The method as recited in claim 26 further including providing said mold with features having a height in a range of $10\mu\text{m}$ to $100\mu\text{m}$.

28. The method as recited in claim 27 further including forming said plate to be substantially transparent to actinic radiation.

29. The method as recited in claim 28 further includes providing said formable material from a group of materials consisting of sol-gel, hybrid sol-gel, polycarbonate, polymethylmethacrylate, and epoxy.

30. The method as recited in claim 29 further including forming said mold from an additional group of materials consisting of silicon, gallium arsenide, quartz, fused-silica, sapphire, organic polymers, siloxane polymers, borosilicate glass, fluorocarbon polymers and a combination thereof.

31. The method as recited in claim 30 further including forming said plate from a further group of materials consisting of quartz, fused silica, and soda lime glass.